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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,791	11/26/2003	Rakesh Mohan Lal	132355GS/YOD GEMS:0205	9095

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EXAMINER	
ABDI, AMARA	
ART UNIT	**PAPER NUMBER**
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,791	LAL ET AL.	
	Examiner	Art Unit	
	Amara Abdi	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12/03/2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4,6-8,10-16 and 18-26* is/are pending in the application.

4a) Of the above claim(s) *5,9 and 17* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4,6-8,10-16 and 18-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's amendments after Final office action, filed December 03, 2007 has been entered and made of record.

2. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

Claim Objections

3. Claim 18 is objected to because of the following informalities:

Claim 18 cannot depends on itself, the Examiner suggests changing the dependency of claim 18 to claim 16.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1-3, 6-7, 23, and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz (US 6,248,988) in view of Avinash (US 5,943,433) and Lohmeyer et al. (US 6,061,477).

(1) Regarding claims 1, 23, and 25:

Krantz discloses a method (column 10, line 6), system (column 1, line 5-6) and computer readable medium storing computer program (column 6, line 65) for producing an image from image data (column 9, line 1) comprising the accessing of the stored image data from a memory (column 6, line 63-65), (the image database is read as memory), and comparing the pixel sampling rate to a desired sampling rate (column 3, line 25-26), (the desired sampling rate is read as Nyquist's theorem), and determining a pixel-sampling rate for the image data (column 8, line 3-12).

Krantz do not explicitly mention the following items:

1) determining a shrink parameter, and processing the image data, including shrinking an input image based upon the shrink parameter.

2) the shrink parameter is ratio of the pixel sampling rate to the desired sampling rate when a redundancy metric is below a predetermined threshold.

(A) Concerning item 1):

Avinash, in analogous environment, teaches a method for correcting inhomogenety of spatial intensity in an acquired MR image, where determining a shrink parameter (column 6, line 21-24), and processing the image data, where shrinking an input image based upon the shrink parameter (column 5, line 14-18).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Avinash, where determining the shrinking parameter, in the system of Krantz in order to have the speed of computation

substantially improved by using reduced data sets, without compromising the accuracy of the final result (column 4, line 5-8).

(B) Concerning item 2):

Lohmeyer et al., in analogous environment, teaches a quality image warper, where upsampling the input image signal to at least two times the Nyquist rate to provide an increased sampling rate (Fig. 4, column 4, line 63-67), (N=2 is read as a threshold "at least two times", and the Nyquist rate is read as ratio, and the redundancy metric is read as the shrink parameter since its definition is the same as the shrink parameter (see claim 6), and the shrink parameter was disclosed by Avinash (column 6, line 21-24)).

It would have been obvious to one having ordinary skill in art at the time the invention was made to use the system of Lohmeyer et al., where using a ratio of the pixel sampling rate to the desired sampling rate, in the system of Krantz in order to increase the sampling rate of a sampled image above the Nyquist rate or samples an analog image at a higher rate than the Nyquist rate (column 2, line 22-24).

(2) Regarding claim 2:

Krantz further discloses the method, where the desired sampling rate is a Nyquist rate sampling for the image (column 8, line 29-30), (the use of Nyquist rate is read as the desired sampling rate).

(3) Regarding claim 3:

Krantz further discloses the method, where the desired sampling rate is determined based at least on a point-spread function of the imaging system, or the frequency content of the image data (column 13, line 30-34).

(4) Regarding claim 6:

Krantz and Avinash disclose all the subject matter as described in claim 1 above.

Krantz and Avinash do not explicitly mention that the redundancy metric is the ratio of the pixel sampling rate to the desired sampling rate.

Lohmeyer et al., in analogous environment, teaches a quality image warper, where upsampling the input image signal to at least two times the Nyquist rate to provide an increased sampling rate (Fig. 4, column 4, line 63-67), (N=2 is read as a threshold "at least two times", and the Nyquist rate is read as ratio, and the redundancy metric is read as the shrink parameter since its definition there definition are the same, and the shrink parameter is disclosed by Avinash (column 6, line 21-24)).

It would have been obvious to one having ordinary skill in art at the time the invention was made to use the system of Lohmeyer et al., where the redundancy metric is the ratio of the pixel sampling rate to the desired sampling rate, in the system of Krantz in order to increase the sampling rate of a sampled image above the Nyquist rate or samples an analog image at a higher rate than the Nyquist rate (column 2, line 22-24).

(5) Regarding claim 7:

Krantz discloses all the subject matter as described in claim 6 above.

Krantz does not explicitly mention the method, where the threshold is unity.

Lohmeyer et al., in analogous environment, teaches a quality image warper, where the threshold is unity (N=2 is read as a unity threshold).

It would have been obvious to one having ordinary skill in art at the time the invention was made to use the system of Lohmeyer et al., where the threshold is unity, in the system of Krantz in order to increase the sampling rate of a sampled image above the Nyquist rate or samples an analog image at a higher rate than the Nyquist rate (column 2, line 22-24).

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz, Avinash and Lohmeyer et al., as applied to claim 1 above, and further in view of Finger et al. (US 6,015,385).

Krantz, Avinash and Lohmeyer et al. disclose all the subject matter as described in claim 1 above.

Krantz, Avinash and Lohmeyer et al. do not explicitly mention the method, where the pixels sampling rate is determined based upon a display filed of view and a size of pixels in the filed of view.

Finger et al., in analogous environment, teaches an ultrasonic diagnostic imaging system with programmable acoustic signal processor, where the pixels sampling rate is determined based upon a display filed of view (column 8, line 17-20) and a size of pixels in the filed of view (column 8, line 8-12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Finger et al., where the pixels sampling rate is determined based upon a display filed of view, in the system of Krantz in order to reduce image artifacts and maximize the amount of information in a displayed image, for both full size and enlarged images (column 1, line 19-21).

7. Claims 8, 13-14, 16, 24, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz (US 6,248,988) in view of Avinash (US 5,943,433).

(1) Regarding claims 8, 16, 24, and 26:

Krantz discloses a method (column 10, line 6), system (column 1, line 5-6) and computer readable medium storing computer program (column 6, line 65) for producing an image from image data (column 9, line 1) comprising the accessing of the stored image data from a memory (column 6, line 63-65), (the image database is read as memory), determining a desired sampling rate for the image data (column 8, line 29-30), (the use of Nyquist rate is read as the desired sampling rate), and comparing the pixel sampling rate to a desired sampling rate (column 3, line 25-26), (the desired sampling rate is read as Nyquist's theorem), and) determining a pixel sampling rate for the image data (column 8, line 3-12)

Krantz do not explicitly mention the determining the redundancy metric and the processing of the image data, based upon the redundancy metric, and processing the image data, wherein the image data is processed by shrinking the image defined by the image data by a shrink parameter based upon the redundancy metric.

Avinash, in analogous environment, teaches a method for correcting inhomogenety of spatial intensity in an acquired MR image, where determining the redundancy metric (column 6, line 21-24), (the redundancy metric is read as the shrunk parameter since the definition of the metric redundancy is the same as the shrink parameter (see claim 6)), and processing the image data, wherein the image data is processed by shrinking the image defined by the image data by a shrink parameter (column 5, line 14-18), based upon the redundancy metric based upon redundancy metric (column 6, line 21-24).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Avinash, where determining the shrinking parameter, in the system of Krantz in order to have the speed of computation substantially improved by using reduced data sets, without compromising the accuracy of the final result (column 4, line 5-8).

(3) Regarding claim 13:

Krantz further disclose the method, where the desired sampling rate is a Nyquist rate of sampling for the image (column 8, line 29-30), (the use of Nyquist rate is read as the desired sampling rate).

(4) Regarding claim 14:

Krantz further discloses the method, where the desired sampling rate is determined based at least on a point-spread function of the imaging system, or the frequency content of the image data (column 13, line 30-34).

8. Claims 10 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz, and Avinash, as applied to claims 8 and 16 above, and further in view of Lohmeyer et al. (US 6,061,477).

Krantz, and Avinash disclose all the subject matter as described in claim 8 above.

Krantz and Avinash do not explicitly mention the method, wherein the shrink parameter is a ratio of the pixel sampling rate to the desired sampling rate when the redundancy metric is below a predetermined threshold.

Lohmeyer et al., in analogous environment, teaches a quality image warper, where upsampling the input image signal to at least two times the Nyquist rate to provide an increased sampling rate (Fig. 4, column 4, line 63-67), (N=2 is read as a threshold "at least two times", and the Nyquist rate is read as ratio, and the redundancy metric is read as the shrink parameter since its definition is the same as the shrink parameter (see claim 6), and the shrink parameter was disclosed by Avinash (column 6, line 21-24)).

It would have been obvious to one having ordinary skill in art at the time the invention was made to use the system of Lohmeyer et al., where using a ratio of the pixel sampling rate to the desired sampling rate, in the system of Krantz in order to increase the sampling rate of a sampled image above the Nyquist rate or samples an analog image at a higher rate than the Nyquist rate (column 2, line 22-24).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz, and Avinash, as applied to claim 8 above, and further in view of Finger et al. (US 6,015,385).

Krantz and Avinash disclose all the subject matter as described in claim 8 above.

Krantz and Avinash do not explicitly mention the method, where the pixels sampling rate is determined based upon a display filed of view and a size of pixels in the filed of view.

Finger et al., in analogous environment, teaches an ultrasonic diagnostic imaging system with programmable acoustic signal processor, where the pixels sampling rate is determined based upon a display filed of view (column 8, line 17-20) and a size of pixels in the filed of view (column 8, line 8-12).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Finger et al., where the pixels sampling rate is determined based upon a display filed of view, in the system of Krantz in order to reduce image artifacts and maximize the amount of information in a displayed image, for both full size and enlarged images (column 1, line 19-21).

10. Claims 11-12 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz, and Avinash, as applied to claim 8 above, and further in view of Blackham et al. (US PG-PUB 2002/0130875).

(1) Regarding claims 11 and 19:

Krantz and Avinash disclose all the subject matter as described in claim 8 above.

Krantz and Avinash do not explicitly mention the method, where image data is processed by resampling the image data.

Blackham et al., in analogous environment, teaches an image display apparatus, where the image data is processed by resampling the image data into a small pixels by using the standard interpolation method (paragraph [0023], line 4-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Blackham et al., where resampling the image data, in the system of Krantz in order to provide wide angle display apparatus with a uniform high resolution capability (paragraph [0007], line 1-3).

(2) Regarding claims 12 and 20:

Krantz and Avinash disclose all the subject matter as described in claim 11 above. Furthermore, Krantz disclose the matching the image data to the desired sampling rate (the matching of matching the image data to the desired sampling rate is read as the same concept as the comparing of the image data to the Nyquist theorem).

Krantz, and Avinash do not explicitly mention the resampling of the image data.

Blackham et al., in analogous environment, teaches an image display apparatus, where the image data is processed by resampling the image data into a small pixels by using the standard interpolation method (paragraph [0023], line 4-8).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Blackham et al., where resampling the image

data, in the system of Krantz in order to provide wide angle display apparatus with a uniform high resolution capability (paragraph [0007], line 1-3).

11. Claims 21 and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krantz, and Avinash, as applied to claim 16 above, and further in view of Delestienne et el. (US 6,377,162).

(1) Regarding claim 21:

Krantz and Avinash disclose all the subject matter as described in claim 16 above.

Krantz and Avinash do not explicitly mention the acquisition system.

Delestienne et el., in analogous environment, teaches a medical diagnosis field service method and apparatus, where the system comprises a data acquisition system (column 5, line 46-47), (the data acquisition system is read as the signal acquisition unit).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Delestienne et el., where the system comprising a data acquisition system, in the system of Krantz in order to permit interactive exchange of information, such as service request and data, between diagnostic systems, remote or centralized field services facilities, and field services units (column 3, line 1-3).

(2) Regarding claim 22:

Krantz, and Avinash disclose all the subject matter as described in claim 21 above.

Krantz, and Avinash do not explicitly mention the system, where the acquisition system is selected from a group consisting of a CT system, an MRI system, an ultrasound system, an X-ray system, a tomosynthesis system, and PET system.

Delestienne et el., in analogous environment, teaches a medical diagnosis field service method and apparatus, where the system controller is linked to a communication module generally similar to communication module of MRI system (column 5, line 56-59), (the data acquisition system is read as the system controller).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the system of Delestienne et el., where the data acquisition system is selected linked to an MRI system, in the system of Krantz in order to permit interactive exchange of information, such as service request and data, between diagnostic systems, remote or centralized field services facilities, and field services units (column 3, line 1-3).

Contact Information:

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571) 270-1670. The examiner can normally be reached on Monday through Friday 7:30 Am to 5:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wu Jingge can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amara Abdi
01/18/2008

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SUPERVISORY PATENT EXAMINER